4.2.5.6 Biological Resources

No Action Alternative

Under No Action, the HEU storage mission described in Section 2.2.5 would continue at ORR. These activities would result in no appreciable change to current conditions of biological resources at ORR as described in Section 3.6.6.

Upgrade Alternative

Preferred Alternative: Modify Existing Y–12 Plant for Continued Highly Enriched Uranium Storage

Upgrading existing HEU storage facilities at Y–12 would cause minimal disturbance to biological resources. This is the case since upgrades would involve existing structures and would take place within an area that is currently disturbed by existing facilities and operations. Noise associated with construction could cause some temporary disturbance to wildlife, but this impact would be minimal since animals living adjacent to Y–12 have already adapted to its presence. Water withdrawal and wastewater discharge would be through existing structures and would involve relatively minor volumes, so wetlands and aquatic resources would not be affected. Discharges would not be expected to be large enough to affect resident populations of the Tennessee dace (deemed in need of management by the State) in Bear Creek.

Collocation Alternative

Construct New Plutonium Storage Facility; Maintain Existing Highly Enriched Uranium Storage Facilities at Y–12 Plant

Under this alternative, consolidated Pu materials would be stored in a new storage facility at ORR. Impacts to terrestrial resources, wetlands, aquatic resources, and threatened and endangered species are described below.

Terrestrial Resources. Construction and operation for the consolidated Pu storage facility at ORR would result in the disturbance of 58.5 ha (144 acres) or about 0.4 percent of ORR. This acreage includes areas on which the facility would be constructed, as well as areas that would be revegetated following construction. Vegetation within the area to be developed would be destroyed during land clearing. Vegetation cover within the proposed site is predominantly oak-hickory forest or pine and pine-hardwood forest (Figure 3.6.6–1). While both types would be affected by construction, it is likely that a greater area of pine and pine-hardwood forests would be removed. This type of forest is more heavily concentrated in valleys, which is where most of the development would occur. Oak-hickory forests are typically found on ridges. Both forest types are common throughout ORR and within the region.

Construction of the proposed facilities would effect some animal populations. Less-mobile animals within the proposed project area, such as amphibians, reptiles, and small mammals, would not be expected to survive. Construction activities and noise would cause larger mammals and birds in the construction area and adjacent areas to move to similar habitat nearby. If the area to which they moved was below its carrying capacity, these animals would be expected to survive. However, if the area was already supporting the maximum number of individuals, the additional animals would compete for limited resources, which could lead to habitat degradation and eventual loss of the excess population. Nests and young animals living within the proposed site may not survive. The site would be surveyed as necessary for the nests of migrating birds prior to construction. Upon completion of construction, revegetated areas would be of minimal value to most wildlife since they would be maintained as landscaped areas.

Activities associated with operation, such as noise and human activity, could affect wildlife living immediately adjacent to the proposed facility. These disturbances may cause some species to move from the area. Disturbance to wildlife living adjacent to the facility would be minimized by preventing workers from entering undisturbed areas. Salt drift generated by mechanical draft cooling systems would be minimal, and no impacts to natural vegetation are expected.

Wetlands. Because the majority of the area in which the proposed facility would be located is upland, it is expected that direct impacts to wetlands could be avoided. Implementation of erosion and sediment control measures would control secondary impacts. Since an existing intake structure would be used during both construction and operation, it would not be necessary to disturb wetlands along the Clinch River. However, a new discharge structure could be required on East Fork Poplar Creek. Depending on its location, this structure could displace some wetlands along the creek. Any potential impacts to wetlands resulting from construction activities would be mitigated in accordance with DOE policy set forth in 10 CFR 1022 and the requirements of a COE permit.

During construction and operation, discharges would be directed to East Fork Poplar Creek. Discharges would have a minimal impact on the flow of the stream and are not expected to affect associated wetlands. All wastewater discharges would be treated as necessary to meet NPDES permit requirements.

Aquatic Resources. Construction and operation of the consolidated storage facility could cause water quality changes (primarily sediment loading and resulting turbidity) to Bear Creek, Grassy Creek, or Ish Creek as a result of soil erosion. Soil erosion and sediment control measures would be implemented to control erosion. Water requirements during both construction and operation would be met by existing site sources. Since a new intake structure would not be required, direct disturbance to aquatic resources in the Clinch River would not occur. Water withdrawal during construction and operation would represent a very small percentage of the Clinch River's average flow and would have little affect on the flow of the river. Flow-related impacts to aquatic resources from increases in impingement and entrainment would be minimal and would be unlikely to affect fish populations in the river.

During construction and operation, wastewater would be discharged to East Fork Poplar Creek. This could require the construction of a new discharge structure that would temporarily disturb aquatic habitat in the vicinity of the outfall. The small volume of wastewater discharged to the stream would not be expected to affect aquatic resources during either construction or operation. In addition, all wastewater would be treated as necessary.

Threatened and Endangered Species. It is unlikely that federally listed threatened and endangered species would be affected by construction of the consolidated storage facilities. [Text deleted.] Land-clearing activities may destroy State-protected plant species found within or adjacent to disturbed portions of the proposed site including pink lady's-slippers, fen orchid, tubercled rein-orchid, American ginseng, purple fringeless orchid, Canada lily, and golden seal. The Tennessee dace is sensitive to siltation and actively seeks clean gravel for spawning. An increase in amount or duration of sediment runoff to Ish Creek or Bear Creek during facility construction could affect this fish species. Preactivity surveys would be conducted, as appropriate, prior to construction to determine the presence of special status species in the area to be disturbed. Consultation with USFWS and State agencies would be conducted at the site-specific level, as appropriate. No additional impacts are expected during operation of the facility. [Text deleted.]

Construct New Plutonium Storage Facility and Modify Existing Highly Enriched Uranium Storage Facilities at Y–12 Plant

Impacts resulting from constructing and operating a new consolidated Pu storage facility and upgrading Y–12 would be similar to those discussed above for the new consolidated Pu storage facility. This is the case since upgrading Y–12 would not disturb any additional land area.

Construct New Plutonium and Highly Enriched Uranium Storage Facilities

Under this alternative, consolidated Pu materials would be stored with HEU inventories in a new collocated storage facility(s) at ORR. Construction and operation of collocated storage facilities at ORR would have similar, but somewhat greater, effects on biological resources as those described for the new consolidated storage facility only. Construction of the collocated storage alternative would disturb 89.5 ha (221 acres) of habitat.

Subalternative Not Including Strategic Reserve and Weapons Research and Development Materials

The exclusion of strategic reserve and weapons R&D materials would have almost the same effects as the other facilities. The size of the facility would be similar, and would not reduce the area of disturbed habitat or lessen the potential impacts to biological resources for the No Action Alternative, the Upgrade Alternative, the Consolidation Alternative, and the Collocation Alternative. [Text deleted.]

Phaseout

The phaseout of HEU storage facilities at ORR is not expected to affect biological resources although short-term increased human activity could temporarily disturb some wildlife species in the vicinity of the site.